tourmaster

SYNERGY™

ELECTRICALLY HEATED APPAREL

USER'S MANUAL & INSTALLATION GUIDE

Synergy™ Jacket Liner

Synergy™ Gloves

Solid State, Electronically Controlled Thermostat

Synergy™ Pant Liner

tourmaster®

MANUAL CONTENTS

Section 1	Synergy™ Electrically Heated Apparel Introduction	Page 1
Section 2	Synergy™ Power Lead Wiring Harness Installation	Page 2
Section 3	Connecting Apparel to the Power Lead Wiring Harness	Page 3
	Jacket or Vest Liners	Page 4
	Pant Liner	Page 4
	Glove	Page 5
Section 4	Interconnecting Synergy™ Apparel	Page 6
	Jacket or Vest Liners to Pant Liner	Page 6
	Jacket Liner to Gloves	Page 7
	Vest Liners to Gloves	Page 7
	Pant Liner to Gloves	Page 9
Section 5	Operating Synergy™ Apparel	Page 11
Section 6	Troubleshooting Guide	Page 12
Section 7	Care and Storage Instructions	Page 15
Section 8	Warranty Information	Page 16
Section 9	Synergy™ Apparel Accessory Options	Page 17

Electrically Heated Riding Apparel by

tourmaster

Tour Master Synergy™ apparel is designed to operate from a vehicle's standard 12-volt electrical system to provide unmatched levels of warmth and comfort. With Synergy™ apparel, wearers can be warm without the bulk and discomfort typically caused by excessive layers of clothing. By providing increased warmth and mobility in cold temperatures, Synergy™ apparel helps reduce fatigue while increasing safety and enjoyment.

Each Synergy™ garment is heated by a series of durable carbon fiber heating elements, which generate safe, electronically controlled infrared heat. In addition to safe and even heating, carbon fiber elements are lightweight, flexible and safe to operate in wet conditions. It is carbon fiber's light weight and flexibility that allows Synergy™ garments to fit comfortably under protective riding apparel.

To ensure the best possible performance, it is important that Synergy™ apparel be form-fitting and fit snugly without hindering wearer movement or comfort. Heat is transferred to the wearer through close contact between the garment and the wearer's body. It is recommended that no more than one thin layer of clothing be worn under Synergy™ electrically heated apparel. Thick layers such as sweatshirts and sweatpants, increase the space between the garment and the wearer, decreasing the effectiveness of the heating elements.

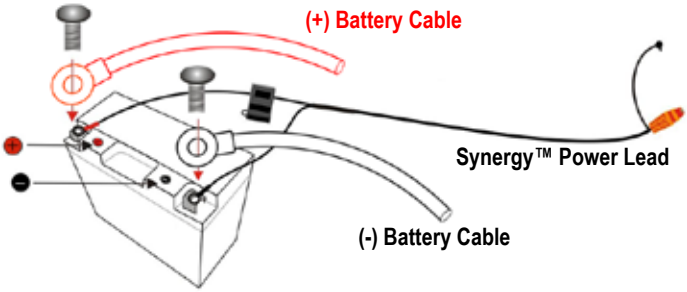
Tour Master® Synergy™ electrically heated apparel is powered by a 12-volt electrical system. No matter how wearers choose to use Synergy™ garments, only one Synergy™ power lead wiring harness per person is needed.

⚠ **WARNING: Connecting Tour Master® Synergy™ electrically heated apparel to any other power source besides your vehicle's 12-volt battery will destroy the heating elements, void the warranty and may cause serious injury or death to the wearer.**

SYNERGY™ POWER LEAD WIRING HARNESS INSTALLATION

Please use the following instructions in conjunction with your vehicle's factory supplied owners manual to properly install the Synergy™ power lead wiring harness.

⚠ **WARNING: To avoid any safety hazards, electrical malfunctions or damage to the vehicle, it is important the following disconnection and reconnection steps be followed step by step during installation. Have the vehicle's manufacturer supplied owner's manual available.**



1. Turn off vehicle and remove the key from the ignition.
2. Locate and access the vehicle's 12-volt battery, in accordance with your vehicle's manufacturer supplied owner's manual.
3. Disconnect the vehicle's **negative (-)** cable from the battery by removing the attachment screw and lifting the cable off of the battery terminal.
4. Disconnect the vehicle's **positive (+)** cable from the battery by removing the attachment screw and lifting the cable off of the battery terminal.
5. Connect the **positive (+)** wire from the Synergy™ power lead wiring harness to the **positive (+)** battery terminal and then reconnect the vehicle's **positive (+)** cable to the **positive (+)** battery terminal. Be sure to securely fasten the attachment screw. *(The **positive (+)** wire from the Synergy™ power lead wiring harness is marked with a red colored end and is connected to the 15 Amp fuse)*

Installing the Power Lead Wiring Harness (Cont'd)

6. Connect the **negative (-)** wire from the Synergy™ power lead wiring harness to the **negative (-)** battery terminal and then reconnect the vehicle's **negative (-)** cable to the **negative (-)** battery terminal. Be sure to securely fasten the attachment screw. *(The **negative (-)** wire from the Synergy™ power lead wiring harness is marked with a black colored end)*
7. Route the red electrical connector of the Synergy™ power lead wiring harness to the left side of the vehicle's seat. To ease connection with Synergy™ garments, allow a minimum of 2" of the cable to extend from under the seat.
8. Secure the Synergy™ power lead wiring harness to the frame or other rigid portions of the vehicle with nylon cable ties or electrical tape.
9. Return any vehicle body panels or equipment to their original location per your vehicle's manufacturer supplied owner's manual.

⚠ **CAUTION: It is important that the wiring be routed away from moving parts or hot areas that could cause potential damage.**

CONNECTING TO THE SYNERGY™ POWER LEAD

Synergy™ Jacket or Vest Liner

Connecting Synergy™ apparel to the Synergy™ power lead or connecting multiple Synergy™ garments together is quick and easy. Our helpful color-coded connectors along with the following instructions will help guide you through the proper connection procedures.

While connecting Synergy™ garments to the Synergy™ power lead and while connecting the temperature control, it is recommended that the wearer be seated in or on their vehicle and be wearing the Synergy™ apparel.

⚠ **WARNING: Shut off the vehicle's motor and remove the ignition key before connecting Synergy™ garments to the Synergy™ power lead. Failure to do so may create a power surge that could damage the vehicle's circuitry and the garment's heating elements.**

Connecting Power Lead; Temperature Control Installation

1. Locate the red electrical connector extending from the lower left of the garment.
2. Connect the garment's red electrical connector to the red Synergy™ power lead connector.
3. Press the two red connectors together firmly.
4. Double check that a solid connection has been made.

TEMPERATURE CONTROL INSTALLATION

Synergy™ Jacket or Vest Liner

1. Locate the black temperature control connector extending from the left front of the garment.
2. While holding the garment's connector, firmly plug in the temperature control and thread on the integrated lock-ring.
3. Secure the integrated lock-ring and attach the temperature control to your left thigh using the provided Synergy™ leg band.

⚠ **CAUTION: Prior to use, double check that the wiring and temperature control do not hinder your ability to control the vehicle.**

CONNECTING TO THE SYNERGY™ POWER LEAD

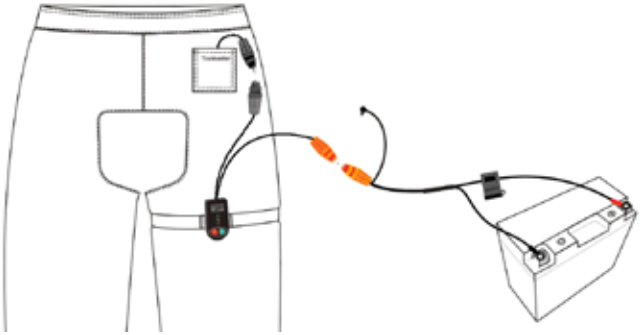
Synergy™ Pant Liner

1. Locate the black electrical connector extending from the left front of the garment.
2. Connect the garment's black electrical connector to the black electrical connector on the temperature control and press firmly.
3. Connect the temperature control's remaining red electrical connector to the red Synergy™ power lead connector and press firmly.

Connecting Power Lead (Cont'd)

4. Attach the temperature control to your left thigh using the provided Synergy™ leg band.

⚠ **CAUTION: Prior to use, double check that the wiring and temperature control do not hinder your ability to safely control the vehicle.**



CONNECTING TO THE SYNERGY™ POWER LEAD

Synergy™ Gloves

1. Route the left and right power supply cords of the glove's temperature control up through your jacket and out through the sleeves.

⚠ **NOTICE: Be sure to run the cord with the temperature control through the right sleeve.**

2. Connect the gray temperature control connector to the gray electrical connector on the right glove and press firmly.
3. Insert the temperature control into the small pouch located on the gauntlet of the right glove.
4. Fasten the integrated hook and loop retention strap over the power cord of the temperature control.
5. Connect the black temperature control connector to the black electrical connector on the left glove and press firmly.

6. Zip up your jacket allowing the red electrical connector to exit from the front left portion of the waist.
7. Connect the red electrical connector to the red Synergy™ power lead connector and press firmly.

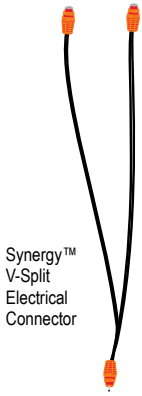
⚠ **CAUTION: Prior to use, double check that the wiring and temperature control do not hinder your ability to safely control the vehicle.**

INTERCONNECTING SYNERGY™ GARMENTS

Synergy™ Jacket or Vest Liner to Synergy Pants

1. Locate the black electrical connector extending from the lower left of the jacket or vest and the black electrical connector extending from the left front pocket of the pant.
2. Connect the jacket's or vest's black electrical connector to the black electrical connector on the pant and press firmly.
3. Double check that a firm connection has been made.
4. Attach the temperature control to your left thigh using the provided Synergy™ leg band.
   (Note: The Synergy™ leg band is also sold separately)

Interconnecting Synergy™ Garments (Cont'd)



Synergy™ V-Split Electrical Connector

Synergy™ Jacket Liners To Synergy™ Gloves

1. While wearing the jacket and gloves, locate the (2) electrical connectors extending from each sleeve and glove gauntlet.
2. Connect the (2) gray electrical connectors on the right sleeve and glove gauntlet.
3. Connect the (2) black electrical connectors on the left sleeve and glove gauntlet.
4. Press firmly to ensure solid connections have been made.

Synergy™ Vest Liners To Synergy™ Gloves

(Requires Synergy™ V-Split electrical connector, which is included with Synergy™ gloves and sold separately.)

Glove Connection

1. Route the left and right power supply cords of the glove's temperature control up through your jacket and out through the sleeves.

⚠ **NOTICE: Be sure to run the cord with the temperature control through the right sleeve.**

2. Connect the gray temperature control connector to the gray electrical connector on the right glove and press firmly.

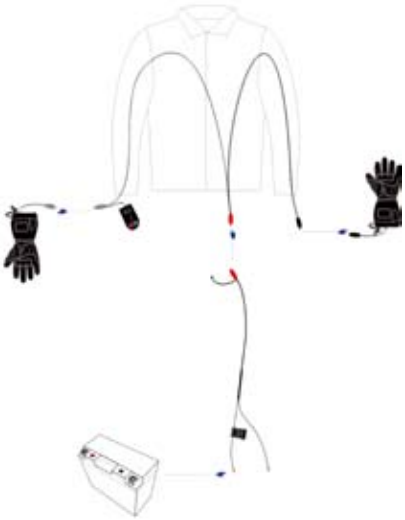
Interconnecting Synergy™ Garments (Cont'd)

3. Insert the temperature control into the small pouch located on the gauntlet of the right glove.
4. Fasten the integrated hook and loop retention strap over the power cord of the temperature control.
5. Connect the black temperature control connector to the black electrical connector on the left glove and press firmly.
6. Zip up your jacket allowing the red electrical connector to exit from the front left portion of the waist.
7. Connect the single end of the V-Split electrical connector to the red Synergy™ power lead connector and press firmly.
8. Connect the red electrical connector of the glove's temperature control to one of the red V-Split electrical connectors and press firmly.

⚠ **CAUTION: Prior to use, double check that the wiring and temperature control do not hinder your ability to safely control the vehicle.**

Vest Connection

1. Locate the red electrical connector extending from the lower left of the garment.



Interconnecting Synergy™ Garments (Cont'd)

2. Connect the garment's red electrical connector to the remaining red V-Split electrical connector and press firmly.
3. Double check that a solid connection has been made.

Temperature Control Installation

1. Locate the black temperature control connector extending from the left front of the garment.
2. While holding the garment's connector, firmly plug-in the temperature control and thread-on the integrated lock-ring.
3. Secure the integrated lock-ring and attach the temperature control to your left thigh using the provided Synergy™ leg band.

⚠ **CAUTION: Prior to use, double check that the wiring and temperature control do not hinder your ability to safely control the vehicle.**

Connecting Synergy™ Pant Liners To Synergy™ Gloves

(Requires Synergy™ V-Split electrical connector, which is included with Synergy™ gloves and sold separately.)

Glove Connection

1. Route the left and right power supply cords of the glove's temperature control up through your jacket and out through the sleeves.

⚠ **NOTICE: Be sure to run the cord with the temperature control through the right sleeve**

2. Connect the gray temperature control connector to the gray electrical connector on the right glove and press firmly.

Interconnecting Synergy™ Garments (Cont'd)

3. Insert the temperature control into the small pouch located on the gauntlet of the right glove.
4. Fasten the integrated hook and loop retention strap over the power cord of the temperature control.
5. Connect the black temperature control connector to the black electrical connector on the left glove and press firmly.
6. Zip up your jacket allowing the red electrical connector to exit from the front left portion of the waist.
7. Connect the single end of the V-Split electrical connector to the red Synergy™ power lead connector and press firmly.
8. Connect the red electrical connector of the glove's temperature control to one of the red V-Split electrical connectors and press firmly.

⚠ **CAUTION: Prior to use, double check that the wiring and temperature control do not hinder your ability to safely control the vehicle.**

Pant Connection

1. Locate the black electrical connector extending from the left front of the garment.
2. Connect the garment's black electrical connector to the black electrical connector on the temperature control and press firmly.
3. Connect the temperature control's red electrical connector to the remaining red V-Split electrical connector and press firmly.
4. Attach the temperature control to your left thigh using the provided Synergy™ leg band.

⚠ **CAUTION: Prior to use, double check that the wiring and temperature control do not hinder your ability to safely control the vehicle.**

Apparel Operation

OPERATING SYNERGY™ ELECTRICALLY HEATED APPAREL

Once the Synergy™ garments have been properly connected to the Synergy™ power lead and the temperature control has been securely fastened, you are ready to use and enjoy Synergy™ apparel.

The following steps will guide you through the activation and operation of your Synergy™ electrically heated apparel.

⚠ **NOTICE: The vehicle's engine must be running in order to operate Synergy™ electrically heated apparel.**

Temperature Control Operation

1. Pressing the green On/Set button once will activate the garment and the temperature control.

⚠ **NOTICE: Upon activation, the temperature will be on the high setting and the red LED will be on.**

2. Pressing the green On/Set button a second time will adjust the temperature to the medium setting and the yellow LED will be on.
3. Pressing the green On/Set button a third time will adjust the temperature to the lowest setting and the green LED will be on.
4. Pressing the green On/Set button a fourth time will turn off the garment and the temperature control.
5. Pressing the red Off/Reset button at any point will turn off the garment and the temperature control.

⚠ **NOTICE: Upon activation, the system will be reset and the temperature will be on the high setting and the red LED will be on.**

⚠ **WARNING: Do not submerge or soak the temperature control in water. The temperature control is waterproof, but is not designed as a submersible device.**

TROUBLESHOOTING

The overall performance of electrically heated apparel depends heavily on the fit of the garment, the condition of each electrical component and the peak amperage output potential of your vehicle's electrical system.

Older vehicles or vehicles with smaller engine displacements may be incapable of powering certain combinations of electric apparel to their full heating potential. In addition, some electrical systems do not provide peak electrical output during low RPM situations or at idle, causing fluctuations in the level of heat provided by the garments.

To determine the peak amperage and power output characteristics of your vehicle's electrical system, consult the vehicle's manufacturer supplied owner's manual. Additionally, other accessories use power. Make sure you know how much power all accessories are using.

Garment Fails To Heat-Up Or Reach Maximum Heating Levels

Improper Fit:
Electrically heated garments must be snug and form fitting. Garments that are too large for the wearer will not make optimum contact with the wearer's body resulting in reduced heat levels.

Improper Layering:
Electrically heated apparel is most effective when worn over one thin layer of clothing. Synergy™ apparel worn over thick clothing such as sweatshirts, jeans or sweatpants will not make optimum contact with the wearer's body resulting in reduced heat levels.

Temperature Control Set Incorrectly:
Synergy™ apparel is designed to operate at three separate temperature levels, check that the temperature control is set to the desired heating level.

Low Vehicle Power Output:
Older vehicles or vehicles with smaller engine displacements may be incapable of electrically powering certain combinations of electric apparel to their full potential.

Troubleshooting (Cont'd)

In addition some electrical systems do not provide peak electrical output during low RPM situations or at idle causing fluctuations in the level of heat provided by the garments.

To determine the electrical power output and characteristics of your vehicle's electrical system consult the vehicle's manufacturer supplied owner's manual.

To determine the power requirements of each Synergy™ garment, consult the chart below:

SYNERGY ELECTRIC APPAREL POWER USAGE AND TEMPERATURE SPECIFICATIONS

SYNERGY GARMENT	POWER SUPPLY	POWER IN WATTS	POWER IN AMPS	GARMENT SURFACE TEMPERATURE at 77ºF/25ºC AMBIENT TEMPERATURE		
				HIGH LEVEL	MEDIUM LEVEL	LOW LEVEL
Jacket	12-Volt DC	76 Watts	6.7 Amps	167ºF	150.8ºF	125.6ºF
				75ºC	66ºC	52ºC
Vest w/Collar	12-Volt DC	52 Watts	4.5 Amps	167ºF	150.8ºF	125.6ºF
				75ºC	66ºC	52ºC
Vest	12-Volt DC	52 Watts	4.5 Amps	167ºF	150.8ºF	125.6ºF
				75ºC	66ºC	52ºC
Chaps	12-Volt DC	43 Watts	3.8 Amps	154ºF	122ºF	113ºF
				68ºC	60ºC	45ºC
Gloves	12-Volt DC	24 Watts	2.1 Amps	161.6ºF	143.6ºF	114.8ºF
				72ºC	62ºC	42ºC

Loose Connections:
Loose connections result in an intermittent flow of electrical power from the vehicle to the garments resulting in reduced heat levels.

Check each of the garment's connections, including the connection to the temperature control and the power lead wiring harness. Press firmly to ensure solid connections have been made.

If the situation persists, turn off the vehicle and double-check the power lead wiring harness electrical connections at the battery. Also check the integrity of the wiring, insulation and the fuse.

To access the fuse for inspection or replacement, first locate the fuse box connected to the **positive (+)** wire of the Synergy™ power lead wiring harness. Open the fuse box lid

to view the condition of the fuse circuit. If the circuit has been broken, the fuse must be replaced. To replace the fuse, simply remove the bad fuse and replace with a fresh 15-Amp fuse, available from hardware stores or auto parts suppliers. Close the fuse box lid and secure the Synergy™ power lead wiring harness to the frame or other rigid portions of the vehicle with nylon cable ties or electrical tape.

⚠ **CAUTION: It is important that the wiring be routed away from moving parts or hot areas that could cause potential damage.**

⚠ **WARNING: Do not exceed a maximum fuse amperage of 15-Amps. Fuses greater than 15-Amps may create a power surge that could damage the heating elements, void the warranty and may cause serious injury or death to the wearer.**

Damaged Heating Elements:

Damaged heating elements may cause garments to heat intermittently or completely fail to heat.
Should your heating elements not operate properly contact your local Tour Master® dealer for assistance.

⚠ **CAUTION: Do not attempt to repair any electrically heated garment, this will void the warranty and can result in high temperatures, which may cause minor to severe burning.**

Damaged Temperature Control

A damaged temperature control may cause garments to heat intermittently or completely fail to heat.

Inspect the garment's temperature control for damaged buttons or electrical connections.

Should your temperature control not operate properly contact your local Tour Master® dealer for assistance.

Cleaning and Storing

CARE INSTRUCTIONS

Tour Master® Synergy™ electrically heated apparel (excluding gloves and temperature controls) is machine washable. Please follow the step-by-step instructions listed below to clean and care for your Synergy™ apparel.

1. Disconnect garment from Synergy™ power lead.
2. Remove temperature control.
3. Machine-wash on the gentle or delicate cycle using the cold-water setting and a mild detergent. Do not use bleach or cleaning solvents.
4. Remove from washer and hang/air dry.

⚠ **NOTICE: Do not soak Synergy™ garments for extended periods, wring out or twist the garments, as this will damage the heating elements.**

⚠ **NOTICE: Do not machine dry, iron or dry clean.**

STORAGE INSTRUCTIONS

For convenient storage, each Synergy™ electrically heated garment comes packaged in a reusable zippered storage pouch. To ensure long-term performance, it is recommended that the following steps be taken when storing Synergy™ electrically heated apparel.

1. Disconnect the temperature control from the garment.
2. Make sure garment is completely dry.
3. Fold garment and carefully place inside reusable storage pouch.
4. Zip storage pouch shut and store in a cool dry place.

⚠ **NOTICE: Do not crumple or roll-up the garments, as this will damage the heating elements.**

TOUR MASTER'S 3-YEAR LIMITED WARRANTY

Tour Master® warrants that the temperature control, heating elements and electrical connectors of all Synergy™ heated apparel to be free from material defects in design and manufacture under normal use for three years from your date of purchase, subject to the conditions below:

This warranty is provided to the original end user purchasing from an authorized Tour Master® dealer and is not transferable. Proof of purchase is required.

Tour Master® is not responsible for any failure caused by any third party product or component, whether authorized or not.

This warranty is void if the product is not used in accordance with the product instruction manual or if it is damaged as a result of improper installation, misuse, unauthorized repair, modifications or an accident.

Tour Master® will, at its option, repair or replace products which meet the necessary warranty criteria.

To obtain warranty service, contact your local authorized Tour Master® dealer.

Tour Master® is not responsible for any vehicle damage or wear and tear caused by the use of Synergy™ electrically heated garments and its components.

tourmaster®

www.tourmaster.com

ELECTRICALLY HEATED APPAREL ACCESSORY ITEMS

Temperature Controls

BMW Power Socket Adaptor

V-Split Connector

Power Lead Wiring Harness

Leg Band

tourmaster®

www.tourmaster.com

©2007 Helmet House, Inc.
Tour Master is a registered
trademark of Helmet House